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ABSTRACT

The industrial development of rural areas within a technologically and industrially advanced nation consists essentially of a redistribution of economic activity. Resultant changes in occupational structure may be assessed through study of five major areas: market participation, sectoral relocation, work specialization, occupational upgrading, and bureaucratization. Introduction of a large-scale production facility to a rural area was studied (along with a control group) for its impact on the area work force. Its effects were marginal in terms of market participation and work specialization but more pronounced in regard to sectoral relocation and occupational upgrading (especially in white-collar occupations). There is some support for the proposition that rural development increases work bureaucratization. The apparent lack of major impact of industrialization may be due to the brevity of the research period (1966 to 1971), the effects being too localized to measure with available data, or, most likely, the dilution of effects through wide dispersal within the region. (MS)

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INDUSTRIAL DEVELOPMENT AND CHANGES IN OCCUPATIONAL STRUCTURES*

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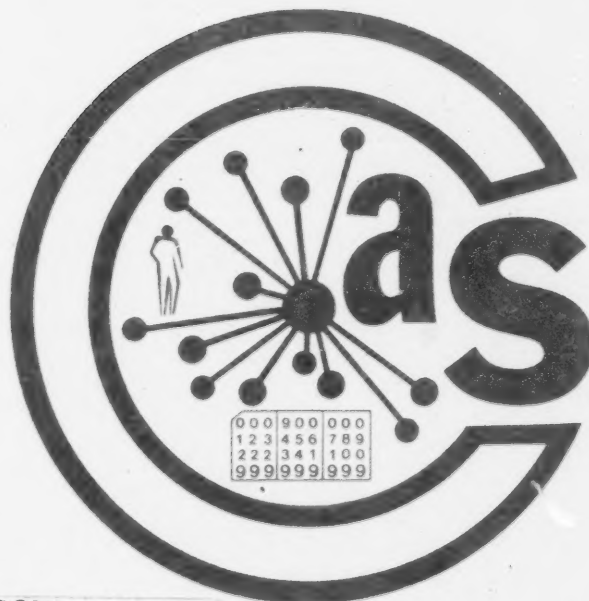
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INDUSTRIAL DEVELOPMENT AND CHANGES IN OCCUPATIONAL STRUCTURES

The industrial development of rural areas within a technologically and industrially advanced nation is a process unlike the historical emergence of industrial societies. This latter evolutionary social change has its origin in scientific discovery, and the corollary growth of technological innovation. Rural industrial development, on the other hand, is essentially a spatial redistribution of economic activity within a nation. Yet, both processes have the potential of altering basic social and demographic structures of the region in which they occur. Although positing quite different theoretical frames of references by which observed phenomena are understood and interpreted, an analysis of the consequences of either process is drawn inevitably to examine many of the same structural characteristics.

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Within the industrialization and modernization literatures, wherein total societies are the units of analysis, there is considerable evidence pointing to changes in social and demographic structures as consequences of technological innovation and industrial growth. Some of these correlates are growth of the factory system as a form of work organization, an increase in the size of production organizations, an extensive use of capital, a change from subsistence to commercial farming, a decline in the proportion of the active labor force engaged in agriculture, an increase in occupational and geographical mobility, an increase in per capita income, the development of a more symmetrical distribution of incomes, and a redistribution of population from low density to highly concentrated urban centers (cf. Smelser, 1963; Faunce and Form, 1969; Moore, 1963; Wilensky and Lebeaux, 1958; Kerr, et al., 1960; Treiman, 1970; Kuznets, 1963).

From this macrosociological perspective structural differentiation is one of the most important mechanisms by which a society undergoes technological and economic development. It is the basic process of social change whereby a society evolves from a social structure organized along rather simple principles to one characterized by complexity of organization (Smelser, 1963). Although industrially-induced structural differentiation is observed in many components of the social structure, it is nowhere more apparent than in the alteration of the composition of the occupational structure (Treiman, 1970; Faunce and Form, 1969; Wilensky and Lebeaux, 1958; Kerr, et al., 1960; Moore, 1963, 1966; Lipset and Bendix, 1959; Smelser, 1963; Smelser and Lipset, 1966).

During development, the system of stratification becomes increasingly dependent on the occupational structure as a mechanism for the distribution of rewards (Faunce and Smucker, 1966; Lipset and Zetterberg, 1956; Turner, 1966). Through the developmental process there seems to be a generalized tendency to shift from ascribed criteria for status allocation to a more achievement-oriented reward system. Increasingly economic benefits, as well as social prestige, are linked directly to occupational roles, hence processes which alter the occupational structure affect one of the key components of the social system. In sum, change in the composition of the occupational structure is of great importance because it has significant consequences for other aspects of social organization.

Moore (1966) argues that economic modernization affects the organization of the occupational structure in five basic areas: (1) market participation; (2) sectoral relocation; (3) work specialization; (4) occupational upgrading; and (5) bureaucratization. It should be stressed, as it is by Moore, that these areas tend to be conceptually inter-related, although they are discussed here in terms of discrete concepts.

Market participation refers to the creation of a labor force, and to the increasing proportion of a society's population actively involved in this labor force. However, one should note that participation by very young and very old persons likely will decrease as development occurs.

Sectoral relocation is the shift observed in developing regions in the distribution of workers over industries. Specifically, during development there is a decline in the proportion of the labor force engaged in agriculture, and an increase in the proportion in the manufacturing and service sectors of the economy. Sectoral relocation can be viewed as resulting primarily from two factors. On the supply side, advancements in agricultural technology increase the per unit output, thus freeing labor for non-agricultural employment. Secondly, the growth of industry results in a demand for labor to fill newly created industrial occupational vacancies.

Work specialization is the process by which functional tasks are broken down and simplified into smaller units of work (Wilensky and Lebeaux, 1953). In other words, the impact of structural differentiation upon the occupational structure is one of promoting a change from the "specification of function" to the "specialization of function" (Weber, 1947:225). In the former, the individual worker unites several different skills to produce goods, whereas in the latter several different workers, each with specialized skills, combine efforts to create a product--a product that owes its existence to no single worker. In this process of work specialization, new occupational identities may be generated.

Occupational upgrading refers to the tendency in developing regions for a shift from manual to nonmanual occupations in the proportion of the labor force in non-agricultural sectors of the economy. There is also a growth in the number of semi-skilled and skilled types of employment (Faunce and

Form, 1969). This upgrading is the result of machines replacing men in those types of activities that are uniform and repetitive. Thus, automation reduces the demand for unskilled labor, and increases the need from a more highly trained and specialized labor force.

Bureaucratization is a process by which there is a decline in the proportion of the labor force earning economic livelihood in their own businesses, or shops, and an increase in the proportion working for others. In other words, it represents a growth in the prevalence of the employee-employer relationship, and a subsequent increase in the dependency of the worker on the employer for continued economic existence (Wilensky and Lebeaux, 1958). Bureaucratization is due largely to the increase in the relative number of large-scale production organizations in the economy.

The importance of Moore's discussion of changes in occupational structures for analyses of rural industrial development lies in his delineation of those features of the occupational structure which serve as links to other aspects of social structure. To understand how these features are affected by rural industrial development, one must set aside the evolutionary social change perspective which places growth of technology in the position of primary cause, and traces the historical patterns of societal change. The industrial development of rural areas within an industrially advanced society is a matter of importing, or transplanting, a technology that already exists within the broader social system of which the rural area is a part. Likewise, the presumed consequences of industrialization as a historical process are accomplished facts within the society as a whole. What is needed therefore, is an explication of the social mechanisms which produce the spatial distribution of economic activity. The free-market economy model, which rests on the proposition that in the long run the competitive system will lead to an optimal spatial

patterning of economic activity, is a useful first approximation to that need, although it is not beyond the pale of criticism.

In an evolving industrial economy it is assumed that industries locate in regions having the greatest comparative advantages for production and marketing, which result in economies of scale and agglomeration. If the market for the products of the dominant economic activity in a particular region is reduced, or if there is a change in the optimal mix of factors of production, as occurs through technological innovation in agriculture for example, the equilibrium of the system will be maintained by spatial mobility of labor and capital factors of production. Where the region possesses advantages for another type of industry, it is assumed that there will be an inflow of capital to take advantage of the available labor. If no such advantage is present within the region, labor will migrate to areas where it is needed. Hence, local or regional unemployment, and underemployment, is seen as a short-run disequilibrium which will be corrected through factor mobility.

The free-market model rests on several assumptions which the economic history of the United States has not validated (Smith, 1971). The factors of production are not as spatially mobile as the model assumes. Similarly, the assumptions of perfect competition, complete knowledge, and economic rationality do not hold entirely true in the real world. Recognition of these limitations of the free-market model has led to governmental intervention, particularly at the federal level, with the goal of making the price mechanism work more effectively. Programs of education, job training relocation assistance, and financial inducements were initiated to increase the mobility of labor. The solution to the spatial mis-match of labor demand and supply was first pursued along the lines of moving surplus labor to places of higher demand. Such efforts paralleled powerful economic

forces encouraging concentration of economic activity and population in metropolitan areas (Summers and Beck, 1972). Thus, market forces, acting jointly with interventionist policies to lubricate the mechanisms of labor mobility, have resulted in massive concentrations of labor in urban areas to such an extent that over-urbanization is viewed as being causally linked to many "social problems".

An obvious second solution to the limitations of the free-market model, and the resultant spatial disequilibrium of labor demand and supply, is to encourage the mobility of capital. Again this has been encouraged through governmental interventionist programs such as advanced depreciation allowances, small business loan programs, and tax exemptions for municipal bonds for plant construction and site preparation. It is the mobility of capital into a non-industrial region which constitutes the primary force in rural industrial development, regardless of whether it is achieved through market forces or interventionist policies. The consequences of an inflow of capital for the structure of occupations will depend heavily upon the nature and size of the labor demand it generates. Presumably, it adds to the existing labor demand. Whether or not this results in an increase in market participation is indeterminant without reference to the history of labor demand and supply within the region. In those areas where labor demand has been declining over a long period of time--several decades--it is reasonable to assume that much of the surplus labor will have migrated out of the region. However, there is generally a lag in this mobility which means that a region probably will have some degree of underemployment and unemployment. In such a region, increasing the labor demand will have only a moderately positive effect on the rate of market participation, because the increased demand can be supplied by the existing surplus, and by labor which migrates into the area

The latter source of labor will have a positive effect on market participation since these additions to the employable age segment of population are also employed. The greatest increase in market participation may be anticipated when the increase in demand follows a recent and sharp decline. In this situation the lag in labor mobility will find the region with high rates of unemployment and underemployment.

Moreover, the sex composition of the increased labor demand will influence the rate of market participation. The greatest increase in market participation will occur when there is a sex balance in the increased demand--in addition to increasing the participation of unemployed and underemployed males, this brings females into the marketplace, many of whom will be secondary wage earners. Where the increased demand is solely for male workers the effect on market participation will follow from the considerations of recent history of demand and supply noted above. However, when the increased demand is largely for female workers, the effect on market participation is likely to be negative. There are two reasons for this rather counter-intuitive effect of increased female labor demand on market participation. First, where the female worker is a second wage earner in the family whose husband is underemployed, or unemployed, the family may delay a decision to migrate. Also, many females entering the labor market in response to an increase in demand will be doing so for the first time, and labor turn-over is generally higher among female workers than among men. Consequently, women who leave the labor market after a first entry are subsequently considered to be unemployed, whereas before they were not. Thus, increased demand for female labor without a similar increase for male labor is likely to decrease the overall market participation.

The mobility of capital into an area, which increases the demand for

labor in a type of industry not previously represented in the industrial structure, will result in sectoral relocation. In the case of rural areas, where agriculture has been the dominant industry, the addition of almost any industrial activity will produce a shift in the occupational structure which reduces the relative importance of agriculture.

Where the occupations represented in the "new" industry require greater educational preparation, and technical skills, than the modal category of occupations in the existing occupational structure, one may anticipate occupational upgrading to occur. Obviously, when the skill levels of the new demand exceed the training of the existing labor force, or the volume of demand cannot be supplied by local labor, an in-migration of skilled labor will result. In either event, the effect on the occupational structure is one of general upgrading.

The experiences of industrialization and modernization indicate a strong trend toward bureaucratization of the occupational structure, and the same pattern may be expected during industrial development. There are at least two reasons for this shift from self-employment to salaried and wage labor. One is the higher rate of return for labor in the salaried and wage labor categories of the occupational structure, as compared to that of many marginally successful self-employment adventures. Secondly, where increased labor demand is heavy and results in an in-migration of labor, consumer demands may create a sufficiently large market, particularly in retail trade, such that corporate capital is attracted to the area; because of its ability to actualize the economies of scale, such capital drives local entrepreneurs to seek employment for salary and wages. However, there is one category of non-agricultural self-employment which may increase --service industries which are difficult to standardize and, therefore, have limited economies of scale, may attract local entrepreneurs and

demonstrate an increase while other types of self-employment are declining.

Specialization within the occupational structure, expansion of the number of distinct occupations, has several sources according to Moore (1966): increased size of interdependent economic and other social units; technological changes; and the creation of new products and services. To some extent all of these sources of specialization are stimulated by the addition of new capital within a rural region, particularly when the capital investment takes the form of a large, technologically sophisticated manufacturing plant which generates a demand for labor in occupations alien to the existing occupational structure. However, one must note that where there is sectoral relocation, the change in specialization may be slight, at least in the short run. This is so because as with sectoral relocation, it is likely that a few occupations are "closed out" while new ones are being added elsewhere in the occupational structure.

Research Design and Description of the Study Areas

In April, 1965, Jones-Laughlin Steel Corporation (J&L) publically announced plans for the construction of a large-scale production facility near the village of Hennepin in Putnam County, Illinois. The 1960 population of the county was 4,570 with an active labor force of 1,663 persons, and had an estimated aggregated personal income of \$21,671,000 from wage and salary disbursements. As part of their overall strategy, J&L purchased 6,000 acres of land in Putnam County, most of which is leased for agricultural production. Construction on the complex was started in June, 1966, and was completed in December, 1967 at a cost of more than \$150,000,000. The first commercial order was shipped on February 19, 1968. During the initial production period, J&L employed roughly 700 workers, most of whom held jobs that would be classified as

"blue collar". The J&L work force in July, 1972 was 1,039, and the majority of these were hourly wage union employees. The 295 salaried employees included, in addition to the 4 plant managers, 100 foremen and craftsmen, 52 professional and technical personnel, 78 clericals, and 19 operatives and service workers. There were 29 females on the payroll; all were in the salaried category with most being clericals. The annual payroll was approximately \$7,000,000. Clearly, the capital investment of J&L in construction and continuing work force represented a dramatic increase in labor demand in Putnam County, Illinois.

In 1966 a study began which was designed to monitor the Hennepin region over the next five years in order to chart the changes that might occur as a result of the introduction of the J&L complex.² For purposes of analysis, the Hennepin area was considered an "experimental" region, and a "control" region was selected and monitored in the same way as the Hennepin area. This design permits a clearer interpretation of observed changes in the Hennepin region.

The experimental area is located along the Illinois River about 100 miles west of Chicago. It is 315 square miles in size, and consists of all four townships in Putnam County, four townships in Bureau County, one township in Marshall County, and the town of Oglesby in LaSalle County. The control area is located in Iroquois County, Illinois, which is located along the Indiana border approximately 100 miles south of Chicago. It is about 222 square miles in area, and is composed of six townships: Belmont, Concord, Iroquois, Crescent, Middletonport, and Sheldon. The region includes the county seat of Iroquois County, the town of Watseka.

Data and Measurement

In 1966 a stratified area-probability sample of households in the two

regions was selected, 1,096 interviews conducted: 781 from the experimental region and 315 from the control. After appropriate weighting for differential sampling fractions, the 1,096 interviews represent a total of 1,597³ observations: 1,168 from the experimental and 429 from the control region.

In 1971 a second stratified area-probability survey was completed. The sampling frame used for this survey was identical to that employed in the 1966 survey. After weighting, a total of 1,566 observations were obtained: 1,164 from the experimental region and 402 from the control. Data from these two cross-sectional surveys will be used here to investigate the impact of the industrial development upon the occupational structure.

Data relevant to the occupational structure were collected from each head of household, and spouse, contacted in 1966 and 1971. Each respondent was asked to indicate his or her occupation. The interviewers were instructed to probe the respondents on this question to help insure a detailed response. These data were coded originally into the three-digit 1960 U. S. Bureau of the Census occupational codes. A reliability check was made on this coding operation, and indicated a misclassification rate of less than 1/2%. These detailed occupational data were reclassified for this analysis into nine major occupational categories: (1) professional, technical, and kindred; (2) farmers, farm managers, and farm laborers; (3) managers, officials, and proprietors; (4) clerical and kindred; (5) sales and kindred; (6) craftsmen, foremen, and kindred; (7) operatives and kindred, including miners; (8) private household workers and other service workers; and (9) laborers, except farm and mine. There was one additional category for those not actively employed full-time in the labor force. This latter classification includes students, the unemployed, occasional workers, retired and hospitalized persons, etc.

Although Wilensky (1966) has noted that the use of occupational classifications that have considerable within-class variation may be misleading (cf. Hodge, 1962), the categorization used here is justified on two grounds. First, any reasonably limited classification that attempts to catalog the many occupational specialities currently used in the United States cannot avoid some within-category heterogeneity. Secondly, since the classification used here is based on the standard census codes, its use preserves comparability with other studies employing these categories.

Our empirical indicators of market participation, sectoral relocation, occupational upgrading, work specialization, and bureaucratization are based upon Moore's (1966) operationalizations of these concepts. The proportion of the head of households, and spouses, who are active, full-time, in the labor force is used as an indicator of market participation. As for the remaining concepts, our estimates of these labor force characteristics are based upon the number of actively employed heads and spouses in our samples. Thus, sectoral relocation is measured by changes in the proportion of the active labor force engaged in agricultural production. Work specialization is indicated by the number of different occupational titles found in the labor force. The proportion of the active labor force who are not self-employed is taken as an indicator of occupational bureaucratization. As an index of occupation upgrading, change in the proportion of the active labor force employed in professional and technical occupations is used. A second indicator of upgrading is also used: change in the proportion of the active labor force employed in professional and technical occupations is used. A second indicator of upgrading is also used: change in the proportion of the active labor force engaged in "white collar" types of occupations, i.e., professionals, technicians, officials, managers, proprietors, clericals, and sales workers.

Findings

Summary data relevant to the major characteristics of the occupational structures of the two regions for 1966 and 1971 are assembled in Table 1.

Table 1 About Here

Market Participation. As can be seen from the tabulation in Table 1, the percentage of heads of households active in the labor force has increased by about 8% in both regions during the 1966 to 1971 period; from 68.58% to 75.6% in the experimental, and 67.60% to 76.37% in the control. This change has been slightly greater in the control area, but the difference between regions is inconsequential. As for the spouses, the percentage active has remained relatively stable in both regions during the research period; however it is interesting to note that the percentage of active spouses is about 4% higher, in 1966 and 1971, in the control region than in the experimental. Disregarding the head-spouse distinction, we find that there has been an approximate 5% increase in market participation between 1966 and 1971; however this increase has been experienced in both study areas. It would appear, then, that industrial development has not had much impact on participation in the economic marketplace by either heads or spouses.

Sectoral Relocation. The percentages of the active labor force employed in each occupational classification for both regions in 1966 and

Table 2 About Here

again in 1971 are presented in Table 2. In the experimental region there have been moderate increases in the proportions of the actively employed

in the manager, clerical, sales, and service workers categories, while there have been major decreases in the craftsmen and operatives classifications. In the control region the most significant increases have been in the farmers, craftsmen, and service workers occupational groups, while the most notable decreases were in the proportions of actively employed in the managers and operatives categories.

The increases found in the experimental region are consistent with changes expected for a developing area--a growth in the managerial and service-related occupations. The decreases, on the other hand, are more difficult to interpret. The decline in the proportion of the labor force active in the craftsmen and operatives occupations may be due to a temporary inflation of these categories during the construction phase of the J&L complex. When the plant was completed these workers may have migrated from the area, thus reducing the proportions found in the 1971 survey.

Between 1966 and 1971 the proportion of the active labor force employed in agriculture decreased from 6.29% to 5.41% in the experimental region, while during the same period the proportion increased from 10.42% to 15.74% in the control. Although the decrease experienced in the experimental area is hardly substantial, it does assume more importance when compared with the marked increase in the proportion of farm labor in the control region. In this comparative context, we conclude that there has been some relative sectoral relocation toward non-agricultural industries over the research period in the experimental area.

Occupational Upgrading. In the experimental region between 1966 and 1971 there was a very slight increase in the proportion of the actively employed in the professional and technical occupations: from 13.77% to 14.39%. (Table I). During this same time span, the proportion of professionals and technicians in the control remained a virtual constant:

11.20%, as compared with 11.17%. Thus it would appear that there has not been any substantial upgrading in either the experimental or control regions. Utilizing a more broadly based definition of upgrading, a stronger picture emerges. There has been a growth, from 36.77% to 45.37%, in the percentage of the active labor force employed in the "white collar" occupations in the experimental area during the research period, but the proportion of "white collar" employees has remained constant in the control, 39.06% in 1966 versus 39.09% in 1971. Further, if we inspect the proportion of the non-agricultural labor force actively engaged in "white collar" jobs, we find that the percentage has increased, from 1966 to 1971, in both study areas; however the increase has been more dramatic in the experimental region than in the control. In sum, there appears to have been a general trend toward a substantial upgrading of the occupational structure in the experimental region, and this upgrading has been in the broadly categorized "white collar" occupations, not in the more narrowly defined professional technical classification.

Bureaucratization. There has been an increase in the proportion of the active labor force employed for salaries or wages in the experimental region: 86.05% in 1966, versus 88.54% in 1971. This trend is reversed in the control area. While 77.34% of those active in the labor force were not self-employed in 1966, this percentage decreased slightly to 76.40% by 1971. It is clear, then, that the occupational structure in the experimental region has become more bureaucratized during the study period, while during the same interval, the opposite has occurred in the control. In addition, previous analysis has demonstrated that the probability of becoming self-employed, or remaining self-employed, is greater in the control region than in the experimental (Beck, 1972).

Work Specialization. The overall number of different occupational

titles is much higher in the experimental region than in the control in 1966 and 1971. But if we express the number of different titles as a ratio to the number of actively employed, we find that in the experimental region there were 12.09 different titles per 100 actively employed in 1966, and this decreased to 11.55 per 100 actively employed by 1971. As for the control, in 1966 there were 18.23 per 100 actively employed, and by 1971 this had increased to 20.30 per 100. In short, our data suggest that although there has been relatively little change in labor specialization in the experimental region, the control area has experienced an increase in specialization during the study period. While this finding is counter to our expectations, the measure of specialization employed here is fallible. Specifically the measure is sensitive to coding errors, i.e., a misclassification of one observation can result in a relatively large change in the overall measure. Secondly, taking a sample of the employed does not guarantee a sample of the occupations of the employed. In sum, the increased specialization in the control region may be more due to weaknesses in our measure than actual changes in the occupational structure of the control area.

Conclusions

Industrial development affects many different aspects of social structures, and one of the most sensitive to change of these structural components is the occupational structure. It was argued that it is possible to assess the impact of industrial development by investigating changes in market participation, sectoral relocation, work specialization, occupational upgrading, and the bureaucratization of work, as well as changes in the distribution of labor over occupational categories.

Utilizing a comparative framework, it was found that the short-term impact of the introduction of a steel plant in an agrarian area of the

Midwest was marginal in terms of market participation and work specialization. The effect of the industrial development has been more pronounced, however, in regard to sectoral relocation and occupational upgrading. The developing region showed a substantial growth in the proportions of the actively employed in the "white collar" occupations during the research period as compared to the control area. And, our data provide some support for the propositions that rural development tends to increase work bureaucratization. An inspection of the changes in the distribution of labor over occupations revealed no significant shifts in either the control or experimental region, but there was a general trend toward greater proportions of labor in the managerial and service occupations in the experimental region.

There are several plausible explanations for the apparent lack of major impact of the introduction of the steel plant on the occupational structure of the developing region: (1) it is entirely possible that the research period, 1966 to 1971, was much too short to allow for the full influence of the plant to take place; (2) it is also possible that the effects of the plant were widely dispersed over the experimental region, thus diluting the plant's impact; or lastly (3) the effects of the plant may have been highly localized and concentrated, thus being "hidden" in the data set employed for this analysis. At this point it is difficult to evaluate which explanation is the most reasonable, but our first-hand knowledge of the research site leads us to exclude the third alternative. There is some evidence that the second explanation is the most credible.

NOTES

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There are two bodies of literature involved here which are not always clearly differentiated in sociological works. The industrialization literature has its origin in the writings of scholars such as Karl Marx, Max Weber, Herbert Spencer, and takes as its central concern the social and psychological consequences of the industrial revolution. The modernization literature is primarily a mid-twentieth century development guided by sociologists and economists such as Wilbert Moore, Seymour Martin Lipset, Neil J. Smelser, Bert F. Hoselitz, and Simon Kuznets. Here too the concern is with societal transformations in which technology and industrial growth are seen as primary causal factors. However, there is a crucial difference in the contexts of social change treated by these two sets of scholars. The former are examining the consequences of an emerging technology and industrial economy. The analysis and interpretation generated by their efforts constitutes a theory (or theories) of evolutionary social change. The scholars of modernization, by contrast, are confronted with the problem of mapping social change in societies which borrow and adapt technology and industrial economic patterns from other societies and enter into a world commodity market already dominated by established industrial societies. To the extent that students of modernization have developed a theory (or theories), it is a theory of social change through diffusion and adoption. Neither of these sets of scholars deals with the issues of industrial development by which we mean the spatial redistribution of economic activity within an industrial society and the consequences that has for social structures in the subnational region experiencing industrial growth.

2

For details concerning this study see Summers, et al. (1969).

3

For a technical description of the sampling design see O'Meara (1966).

4

This operational definition of market participation was not explicitly used by Moore (1966), yet we believe that it should reflect increased participation.

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TABLE 1
INDICATORS OF CHANGE IN OCCUPATIONAL STRUCTURE

Indicator	Experimental		Control	
	1966	1971	1966	1971
<u>Market Participation</u>				
% Actively Full-time Employed Heads	68.58 (N=1168) ^a	75.69 (N=1164)	67.60 (N=429)	76.37 (N=402)
% Actively Full-time Employed Spouses	25.15 (N=859)	25.55 (N=822)	29.84 (N=315)	29.59 (N=294)
% Actively Full-time Employed	50.17 (N=2027)	54.93 (N=1986)	51.61 (N=744)	56.61 (N=696)
<u>Sectoral Relocation</u>				
% Of Actively Employed in Agricultural Occupations ^b	6.29 (N=1017)	5.41 (N=1091)	10.42 (N=384)	15.74 (N=394)
<u>Occupational Upgrading</u>				
% Of Actively Employed in Professional or Technical Occupations	13.77 (N=1017)	14.39 (N=1091)	11.20 (N=384)	11.17 (N=394)
% Of Actively Employed in White Collar Occupations ^c	36.77 (N=1017)	45.37 (N=1091)	39.06 (N=384)	39.09 (N=394)
% Of Actively Employed in Nonagricultural Jobs Who Are White Collar ^c	39.24 (N=953)	47.97 (N=1032)	43.60 (N=344)	46.39 (N=332)
<u>Bureaucratization</u>				
% Of Actively Employed Who Are Not Self-employed	86.05 (N=1017)	88.54 (N=1091)	77.34 (N=384)	76.40 (N=394)
<u>Work Specialization</u>				
Number of Different Job Titles	123	126	70	80
Number of Different Titles Per 100 Actively Employed	12.09	11.55	18.23	20.30

^a Base Number of Observations for the percentages are in parentheses

^b Includes Farmers, farm managers, and farm laborers

^c Persons in the professionals, managers, clerical, and sales categories

TABLE 2
PERCENTAGE OF ACTIVELY EMPLOYED IN OCCUPATIONAL CATEGORIES

Occupational Category	<u>Experimental</u>		<u>Control</u>	
	1966 (N=1017)	1971 (N=1091)	1966 (N=384)	1971 (N=394)
Professionals	13.77	14.39	11.20	11.17
Farmers	6.29	5.41	10.42	15.74
Managers	10.82	13.02	15.36	13.96
Clerical	9.64	13.11	9.38	9.64
Sales	2.56	4.86	3.13	4.31
Craftsmen	21.04	17.51	15.10	18.53
Operatives	24.88	18.52	27.08	14.97
Service Workers	7.08	9.07	6.51	10.41
Laborers	3.93	4.12	1.82	1.27
Total	100.01	100.01	100.00	100.00